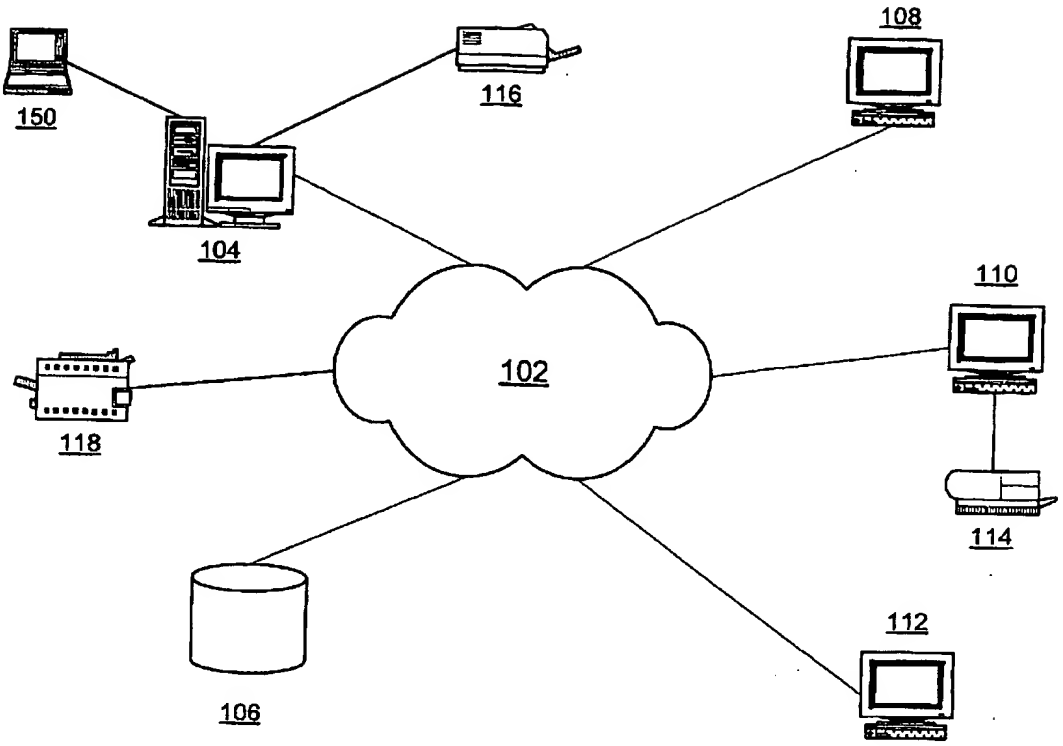
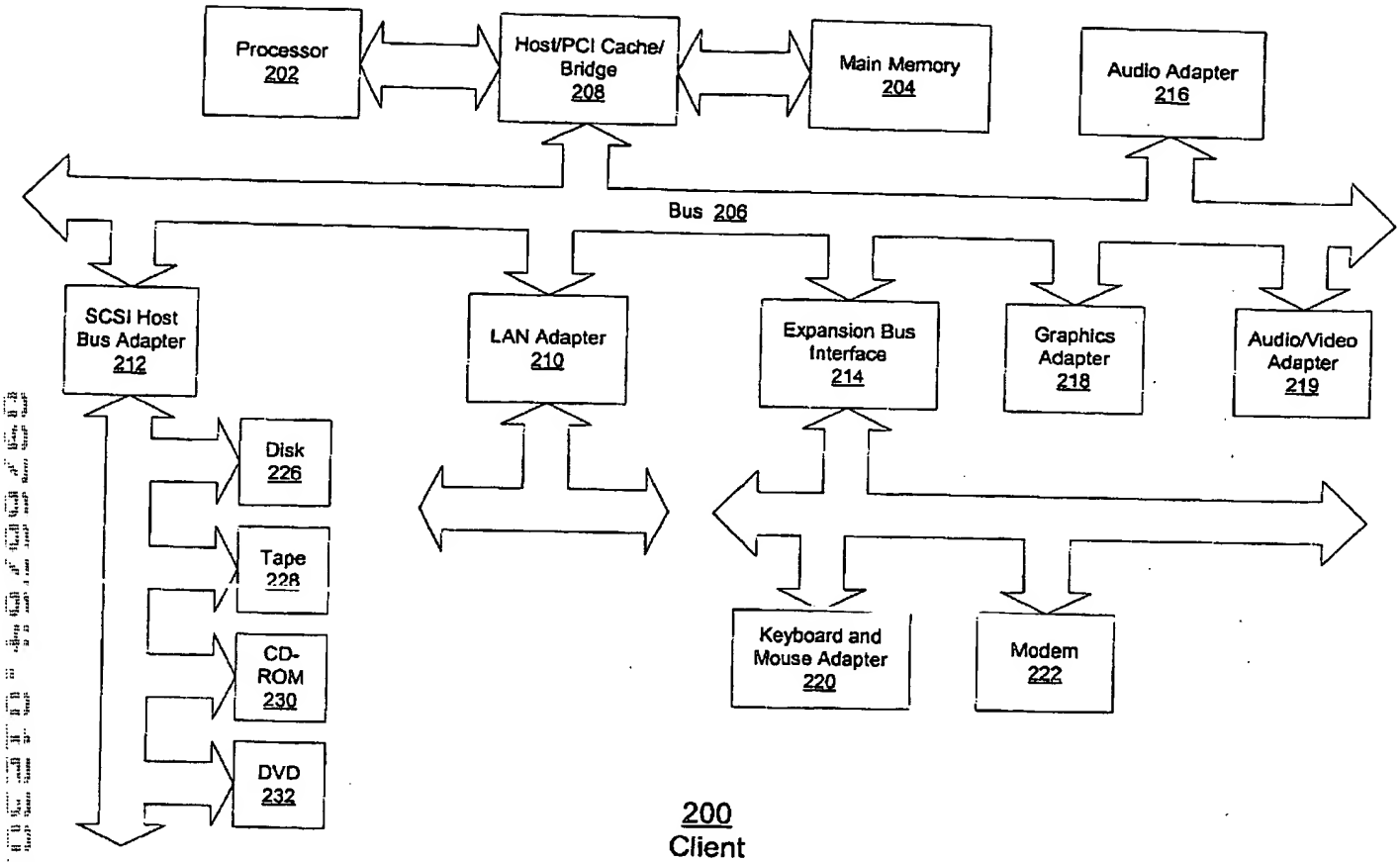


100

Network

Figure 1



200
Client

Figure 2

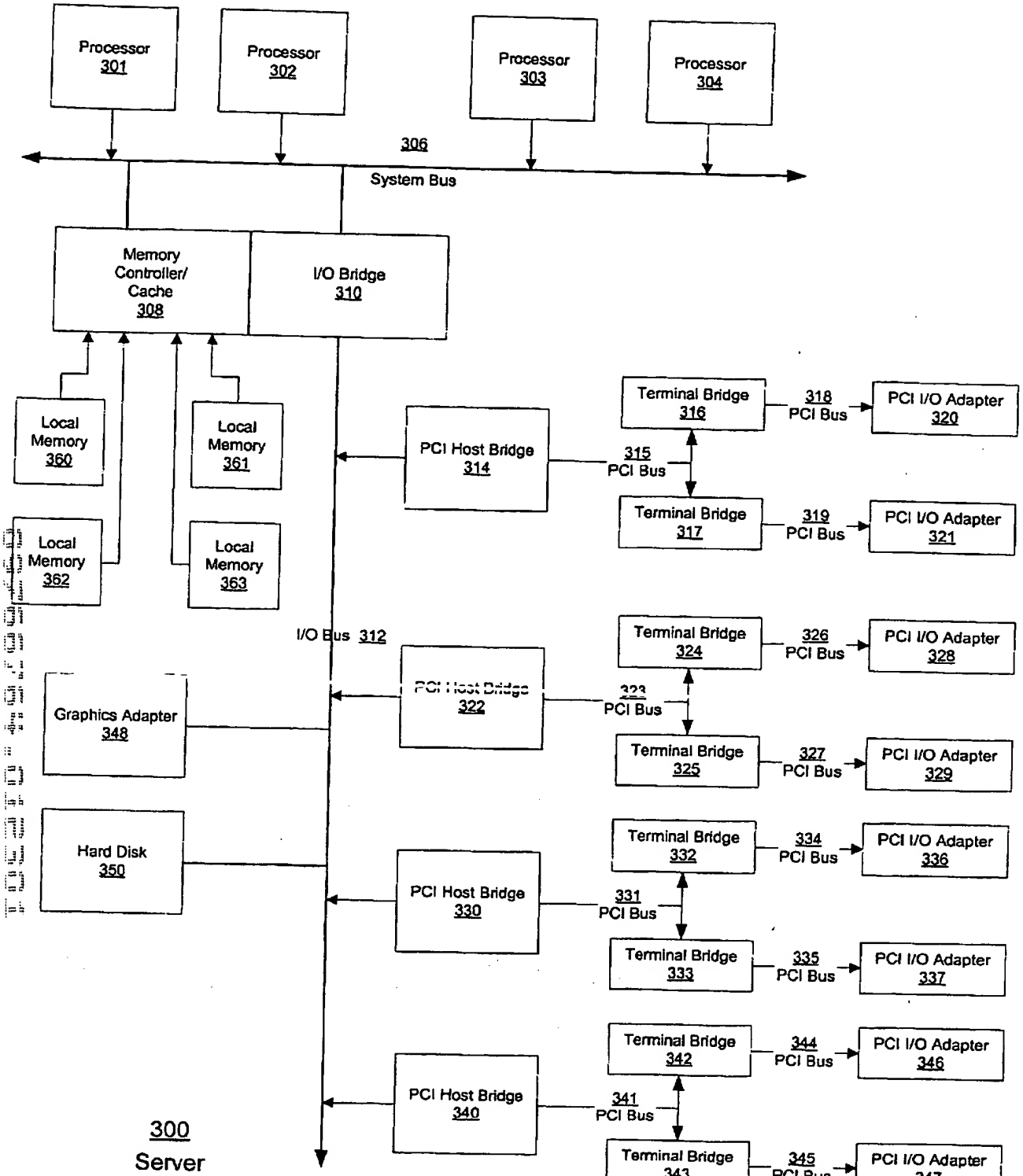

Processor 301
Processor 302
Processor 303
Processor 304
306
System Bus
Memory Controller/ Cache 308
I/O Bridge 310
Local Memory 360
Local Memory 361
Local Memory 362
Local Memory 363
I/O Bus 312
PCI Host Bridge 314
315 PCI Bus
Terminal Bridge 316
318 PCI Bus
PCI I/O Adapter 320
Terminal Bridge 317
319 PCI Bus
PCI I/O Adapter 321
PCI Host Bridge 322
323 PCI Bus
Terminal Bridge 324
326 PCI Bus
PCI I/O Adapter 328
Terminal Bridge 325
327 PCI Bus
PCI I/O Adapter 329
Graphics Adapter 348
Hard Disk 350
PCI Host Bridge 330
331 PCI Bus
Terminal Bridge 332
334 PCI Bus
PCI I/O Adapter 336
Terminal Bridge 333
335 PCI Bus
PCI I/O Adapter 337
PCI Host Bridge 340
341 PCI Bus
Terminal Bridge 342
344 PCI Bus
PCI I/O Adapter 346
Terminal Bridge 343
345 PCI Bus
PCI I/O Adapter 347
300
Server

Figure 3

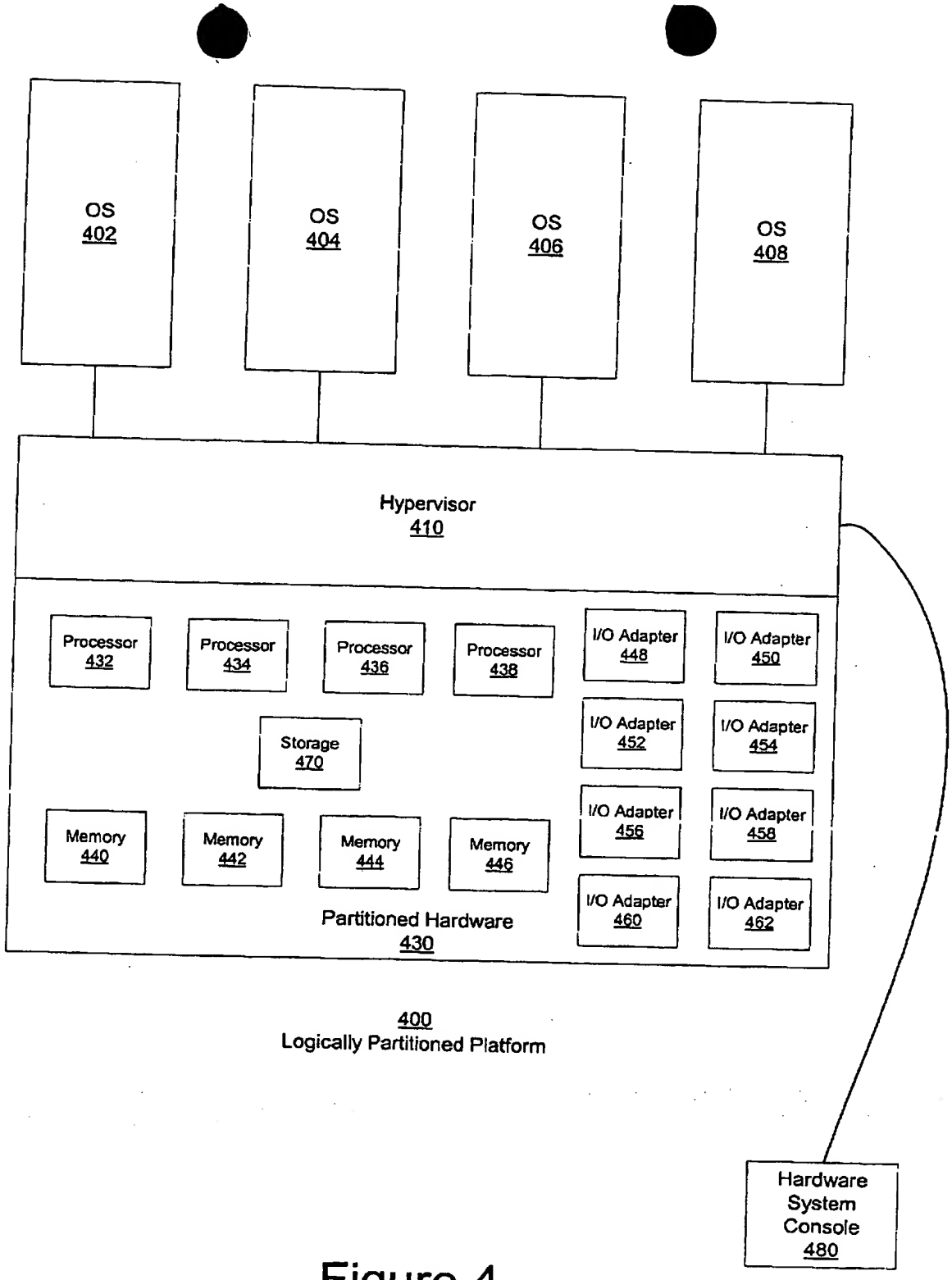

OS
402
OS
404
OS
406
OS
408
Hypervisor
410
Processor
432
Processor
434
Processor
436
Processor
438
I/O Adapter
448
I/O Adapter
450
I/O Adapter
452
I/O Adapter
454
Storage
470
I/O Adapter
456
I/O Adapter
458
Memory
440
Memory
442
Memory
444
Memory
446
I/O Adapter
460
I/O Adapter
462
Partitioned Hardware
430
400
Logically Partitioned Platform
Hardware
System
Console
480

Figure 4

IOA 1	I/O bus DMA address 1-4
IOA 2	I/O bus DMA address 5-8
IOA 3	I/O bus DMA address 9-12

500
I/O Bus DMA Address Range Table

Figure 5A

OS 1	IOA 1 IOA 3 Mem 1-20
OS 2	IOA 2 Mem 21-40

520
Allocation Table

Figure 5B

Mem 5-8	I/O bus DMA addresses 1-4
Mem 11-13	I/O bus DMA addresses 9-11
Mem 25-26	I/O bus DMA addresses 5-6

550
TCE Table

Figure 5C

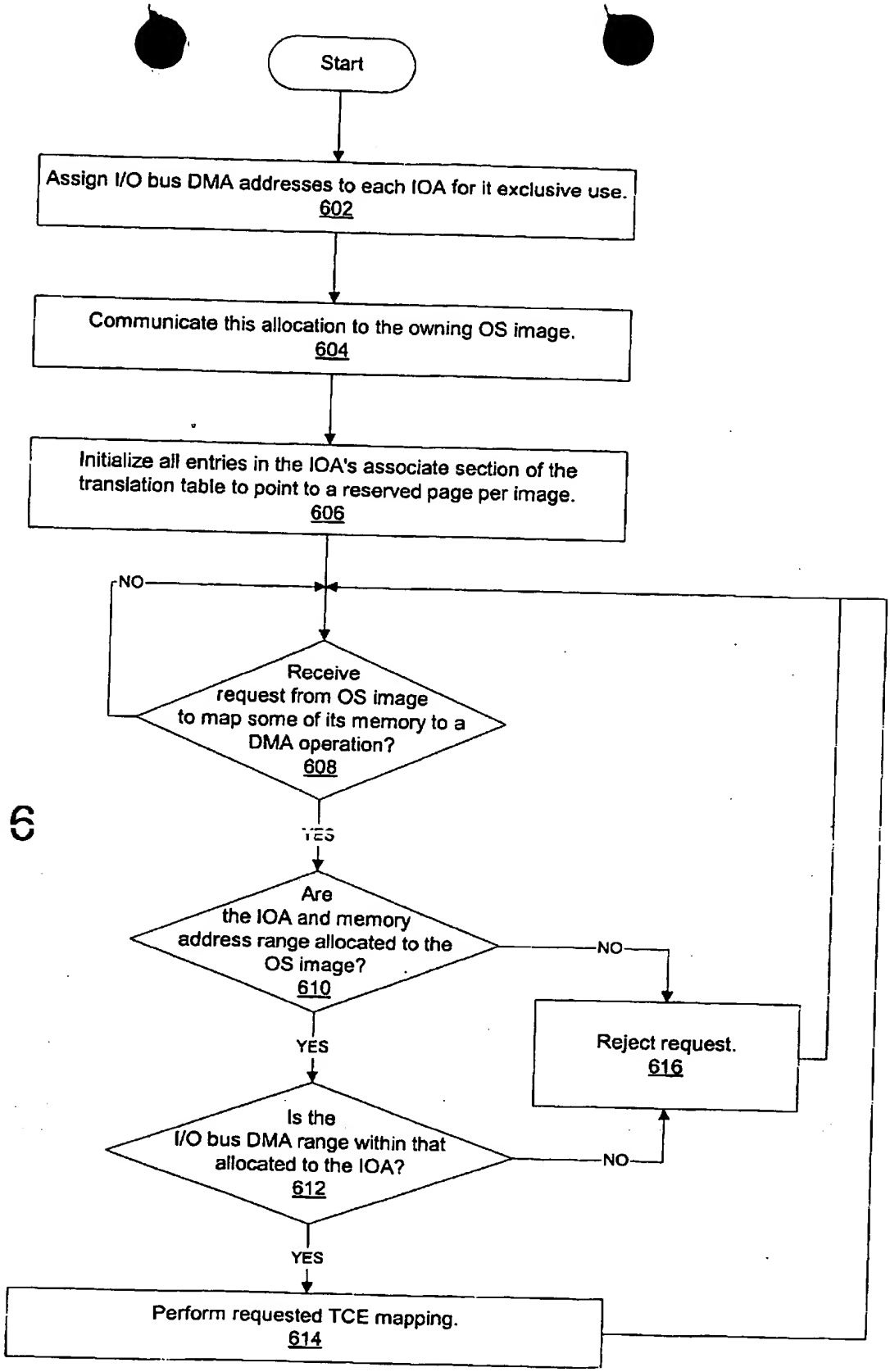

Start
Assign I/O bus DMA addresses to each IOA for it exclusive use.
602
Communicate this allocation to the owning OS image.
604
Initialize all entries in the IOA's associate section of the translation table to point to a reserved page per image.
606
NO
Receive request from OS image to map some of its memory to a DMA operation?
608
YES
Are the IOA and memory address range allocated to the OS image?
610
NO
Reject request.
616
YES
Is the I/O bus DMA range within that allocated to the IOA?
612
NO
YES
Perform requested TCE mapping.
614

Figure 6

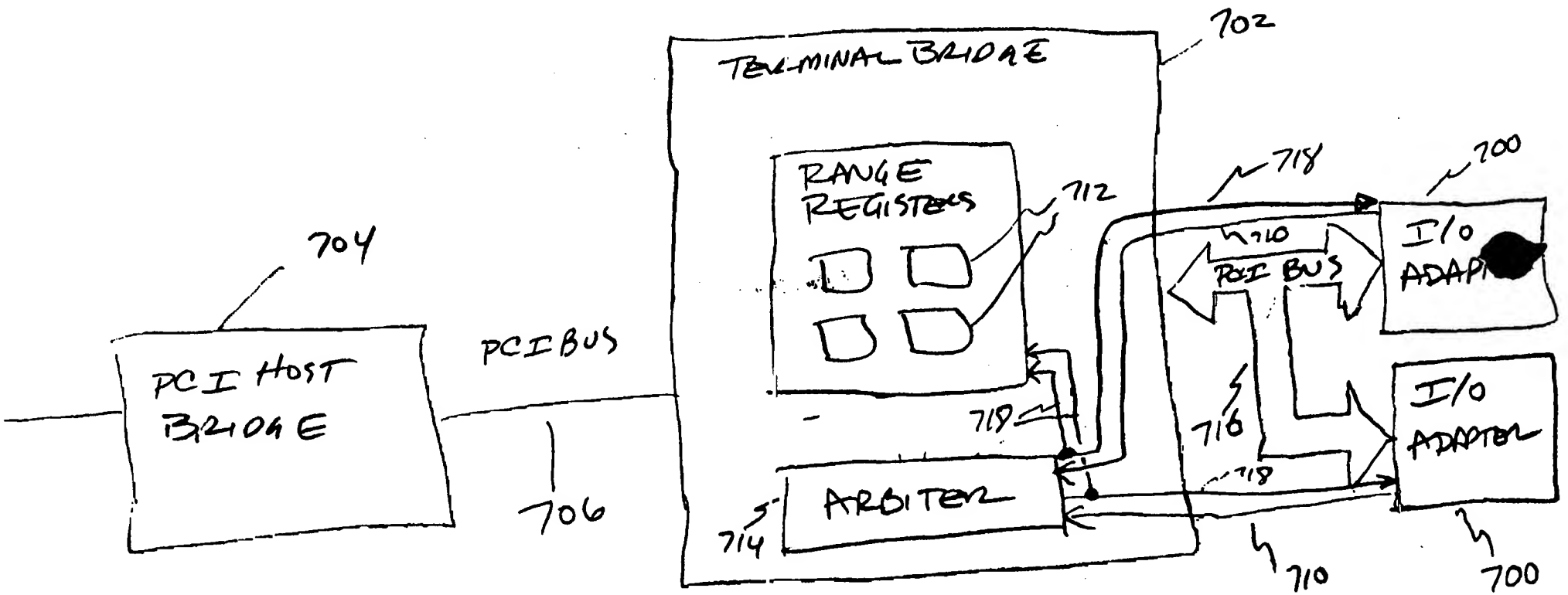

TERMINAL BRIDGE
702
RANGE REGISTERS
712
704
PCI HOST BRIDGE
PCI BUS
706
718
700
710
PCI BUS
I/O ADAPTER
716
719
718
ARBITER
714
I/O ADAPTER
710
700

FIGURE 7